Remarks

A. Summary to date:

Claims 1-29 are pending in the application. Claims 1-28 are rejected. Claim 29 is allowed.

Claims 1-2, 6-7, 11-12, 15, 17-19 and 26-28 remain rejected under 35 USC 102(b) over Israel (US 4,887,409). Throughout prosecution the Examiner has maintained that extruded powders are not patentably distinct from pressed powders and that the recitation of extruded powder in claim 1 is met by the disclosure of pressed powder in the Israel patent (US 4,887,409). In three replies, the applicant expounded on the differences between pressed powder and extruded powder, drawing on the specification as filed, as well as on that which was known by a person of ordinary skill in the art at the time the invention was made.

In the office action dated June 2, 2003 (paper #9) the Examiner argued as follows:

> Applicant has argued the difference in compositions of extruded powders and pressed powders; however, Applicant fails to show the different amounts of binders used in pressed and extruded powders...**The only difference** between the final extruded powder and pressed powder appears to be a degree of binder used and the disclosure is not specific as to what this difference in the degree of binder used is; without this teaching the degree of binder used is broadly claimed and is held to be met by the prior art.

In reply, the applicant pointed out that there was no reason for the Examiner to assume that the only difference between pressed and extruded powders is the level of binder used in making the powders. Furthermore, even if that was the only compositional difference (and it isn't), that difference in composition could and does result in dramatic differences in the final product so that extruded powders are unlike pressed powders to a substantial degree and in a number of ways, which are expounded upon in the specification and in previous replies by the applicant. An analogy was drawn to the dramatic differences between various grades of iron and steel, although their chemical compositions are greatly similar. The applicant went on to assert further, that a person of skill in the art at the time the invention was made readily recognizes and understands the differences between pressed and extruded powder. This, in general makes them patentably distinct. Finally, the applicant asserted that the

Examiner had provided no evidence to support her position that an extruded powder should ever be anticipated by a pressed powder, merely an unsupportable assertion that the only difference between them is in the level of binder used and that that difference could be ignored for patentability. Applicant then went on to discuss the differences in the two powder forms as outlined in the specification. Generally, these differences as discussed in the specification included: chemical composition, including the limitations placed on chemical composition by the different manufacturing steps of pressing verses extruded; and the very different physical properties of the final powder products.

In the Advisory action dated August 27, 2003 (paper #12) the examiner did not dispute that the specification elaborates on the differences between pressed and extruded powers, but she did consider the applicant's comments unpersuasive, saying:

> The terms pressed powder and extruded powder are used interchangeably in the art and cannot be used to distinguish over each other (see US patent 3,800,034, col. 1, lines 10,49; US Patent 4,925,667, col. 2, lines 20+ which refer to the process of 4,337,859 as an extruding process while the '859 patent refers to the process as a pressed powder process.

The above statement in the Advisory Action is the first presentation of this line of reasoning by the Examiner. Clearly it is a response to the applicant's assertions that persons of ordinary skill in the art do understand pressed powder and extruded powder differently. Furthermore, it is the only statement made by the examiner in the Advisory Action. Subsequently, Applicant filed an RCE with comments directed to this new line of reasoning. Applicant pointed out the flaws in the Examiner's use of references US 3,800,034; US Patent 4,925,667 and 4,337,859. Specifically, the Examiner lifted portions out of context and failed to consider these references for all they disclose. The Applicant pointed out that a proper reading of these references supported the Applicant's positions and not the Examiner's.

In the present office action, dated December 17, 2003 the Examiner remains unconvinced and is holding to her original position that extruded powders are not patentably distinct from pressed powders. The present office action advises:

> Applicant is advised to file a declaration under 37 C.F.R. 1.132 to show in ALL CASES the final product of the extruding process being totally different from the final product of the pressing product; **it is noted that the claims in the instant application are subjected to article claims, therefore, in order to give them patentable weight,**

> **Applicant must show the evidences of the differences in the final product of the extruded powders and the pressed powders**...It is also noted that **Applicant must show differences in the final product of extruded powders have some criticalities to the present invention that was disclosed in the original disclosure.** [emphasis added]

And that is where it lies.

Rejections under 32 USC 102 and 103.

All of the outstanding rejections rely on Israel et al. (US 4,887,409) as the primary reference. Israel discloses "pressed" or "compressed" powder and the Examiner has never disputed the Applicant's assertion that Israel does not explicitly disclose an extruded powder. Rather, the Examiner has maintained that there is no patentably distinct difference between pressed and extruded powders. Therefore, if it can be shown that extruded powders are patentably distinct from pressed powders, all of the outstanding 102 and 103 rejections fall.

The Examiner is directed to chapter six of Handbook Of Powder Science & Technology, second edition, Fayed and Otten editors, published in 1997, about four years before the filing of this application. Chapter six is entitled "Size Enlargement By Agglomeration" and portions of that chapter are submitted with this response. Applicant maintains that this reference demonstrates that a person of ordinary skill in the art of powder science at the time the invention was made, understood that extruded powers in their final form are significantly and critically different from pressed powders. The most important difference is in tensile strength although other important differences exist as well.

In what follows, the Applicant has quoted portions of the reference to show the art accepted meaning of "extruded" and "pressed" powders. Applicant's comments follow each excerpt.

I. That extruded powder and pressed powder have distinct meanings.

6.3.3 Methods of Size Enlargement by Agglomeration (p.246-247)

"A common classification of methods for the size enlargement of particulate matter distinguishes between two types of processes:

- Growth/tumble agglomeration (no external forces)
- Pressure agglomeration (low medium and high external forces

and two techniques:

- Binderless agglomeration
- Agglomeration with addition of binders."

[**Note: We are only concerned with Pressure agglomeration processes, which include extrusion and compressing.**]

Fig 6.33 (p. 229)

[**Note:** The figure shows a couple of things. First, Pressure agglomeration techniques are divided into "low", "medium" and "high" pressure. Second, low and medium pressure techniques generally use a binder and high pressure techniques are generally binderless operations.]

6.3.3 Methods of Size Enlargement by Agglomeration (p. 249)

"Relatively uniformly shaped and sized agglomerates can be obtained by **low- to medium-pressure agglomeration** whereby the feed mixture **must still be made up of fine particles and binders.** The **moist,** often sticky mass of particulate solids and a **liquid binder is extruded** through holes in differently shaped screens and perforated dies (Fig. 6.59). Agglomeration and shaping occur by the pressure forcing the material through holes and by frictional forces during passage of the mass."

[**Note:** extrusion is a low to medium pressure operation that requires the presence of a binder.]

"Since **high-pressure agglomeration** is essentially a **dry** process, there is a limitation in regards to the highest tolerable moisture content of the feed."

[**Note:** High pressure agglomeration is a dry or binderless operation.]

6.5.3 **Low- and Medium**-Pressure Agglomerators (pp.299, 309, 311)

"A modern machine that may, alternatively apply low or medium pressure is a screw **extruder**."

"Single or twin screws convey the **damp** formulation from the feed hopper to the **extrusion** zone."

"To render materials suitable for pelleting or **extrusion, they must have inherent binding characteristics or contain binders and feature a certain lubricity. Therefore, most medium pressure agglomeration techniques use moist mixtures,** that are prepared in a pre-mixing step prior to pelleting."

[**Note:** extrusion is a low to medium pressure operation that requires the presence of a binder.]

6.5.4 **High**-Pressure Agglomerations (pp.312-362)

[**Note:** Pressed powders are made by high-pressure agglomeration. This section discusses the many methods of agglomerating powder by pressing or compacting. As noted above, high-pressure processes are dry or binderless. Pressed powders are made via a dry, binderless process.]

At this point it should be clear that the terms extruded and pressed powder conjure in the mind of a person of ordinary skill in the art, definitively different articles of manufacture, which may, therefore support patentably distinct claims.

II. That powder agglomerated by extrusion has different final properties than one made by pressing

Applicant will go on from here to address the Examiner's concern that:

> Applicant must show the evidences of the differences in the **final** product of the extruded powders and the pressed powders...It is also noted that Applicant must show differences in the final product of extruded powders have some criticalities to the present invention that was disclosed in the original disclosure.

Although it should be clear that powders made by different processes, with different starting materials, on different equipment operated under different parameters will generally have different physical, chemical and functional properties, Applicant will rely on the submitted reference work for support.

6.1 Introduction (p.202-203)

"Strength of agglomerates derives from the action of binding forces, acting either at the coordination points between the particles or the interfaces between a matrix

binder and the particulate solids or, respectively, by the negative capillary pressure of a liquid filling the pore volume."

[**Note:** some binding forces are provided by liquid binder, but other types exist as well including contact between powder particles when no binder is present.]

6.2.1 Binding Mechanisms (p.206)

"To obtain agglomerates from particular matter, binding forces must act between the individual particles."

[**Note:** Diagrammatic representations of these are shown in Fig. 6.3, (p.208). It must be expected that powders using different binding mechanisms will have different final properties.]

6.2.2 Theory Of Agglomerate Bonding And Strength (p.207)

"The most important characteristic of **all forms** of the agglomerates is their strength."

"All binding mechanisms can be described by one of three models:

1. The entire pore volume of the agglomerate is filled with a (matrix) substance that can transmit forces and thereby causes strength.
2. The pore volume is entirely filled with liquid. *(i.e. extruded powders)*
3. Binding forces are transmitted at the contact and coordination points of the primary particles forming the agglomerate." *(i.e. pressed powders)*

[**Note**: there are many forms of agglomerated powders and they have different strengths. Strength is the most important property of the final powder. Model number two, above, is the case when liquid binder is present as in extruded powders. Section 6.2.2.2 explains that when liquid binder is present the tensile strength is due to capillary pressure. The tensile strength of powders made by dry pressing cannot be described by model number two because there is no capillary pressure when no liquid is present between powder particles. The use of different models to explain the physical

properties of extruded and pressed powders bespeaks their physical differences. Therefore, extruded powders and pressed powders, in their final form, are different.]

Fig. 6.11 Approximation of Theoretical Tensile Strength of Agglomerates (p.214)

[**Note**: This logarithmic plot shows that in general **there are orders of magnitude difference in the tensile strength between powders that have liquid binders (i.e. extruded) and dry powders (i.e. pressed).** Once again, it is clear that extruded powders and pressed powders, in their final form, are different. Therefore, they are understood to be different by persons skilled in the art. **No person skilled in the art would use the terms pressed powder and extruded powder interchangeably.**]

Chapter six of the reference is quite lengthy, but represents the state of the art at the time the invention was made. The Examiner is invited to review this material to see for herself the many different characteristics of extruded and pressed powders. Applicant believes that it must finally be admitted that extruded powders are understood by a person of ordinary skill in the art to be different from pressed powders. And it should be clear that, in general, extruded powders in their final form are physically and functionally different from pressed powders. One of the more obvious and **critical** differences is the orders of magnitude difference in the tensile strength between extruded powders pressed powders. It is worth noting that throughout the "Handbook of Powder Science and Technology" the concept of extruded powder has no overlap with that of pressed powders. They are always discussed as separate animals having different characteristics and requirements. If the Examiner is going to persist in her opinion in the face of such conclusive evidence, then the applicant must request a thoroughly detailed explanation of why the Examiner would stand against the expert authors and editors of the Handbook.

III. Criticality of Tensile Strength

Tensile strength is critical because it dictates how powders must be handled and packaged. Because of their superior strength, extruded powders are typically manufactured outside of their final container, subsequently handled and placed into a

final container, as in the present invention. In contrast, because of the inferior tensile strength of pressed powders, pressed powders are manufactured in a final package, i.e. the powder is pressed after being filled into pans. Pressed powders are just too weak to press and then handle outside of a pan. For this reason, it is not feasible to produce a case of the present invention using pressed powders. A case of the present invention comprises assorted different powders in close proximity to each other. Such a case could not reasonably be filled with assorted loose powders and then pressed. The only way to assemble a case of the present invention is to be able to handle the powder components after they are manufactured. Extruded powders permit this, but compressed powders do not. Furthermore, as discussed in the specification at paragraph 27, the powders in the case of the present invention may be moved around by the consumer. This could never be done with pressed powders because they are too fragile, i.e. inferior tensile strength. Furthermore, as discussed in the specification at paragraph 22, in the case of the present invention the powder rises above the surface so that an applicator may be drawn across multiple powders easily and cleanly, without lifting the applicator. In contrast, and because of their inferior tensile strength, pressed powders in pans do not ordinarily rise above the height of the pan. This is because the wall of the pan provides support for the weaker powder. Here again, it is clear that pressed powders, because of their inferior tensile strength, could not effectively be used in a case of the present invention.

The present invention is a novel case for holding a multitude of different color powders. The manufacture of such a case is greatly simplified if the powders used are extruded powders, as opposed to pressed powders. Efforts to make cases or compacts that hold several different colors of pressed powder and the drawbacks of those cases are discussed in the specification at paragraphs 3, 4 and 5. In contrast to those, the case of the present invention may be quite simple when the powder disposed in the case is an extruded powder. The combination of a case of the type described in the specification and an extruded powder disposed in it, is new and it overcomes problems that are associated with cases that hold several pressed powders. The applicant has exploited the art-understood differences between extruded powders and pressed

powders, to overcome difficulties in the prior art. Therefore, the differences between extruded and pressed powders are critical the invention.

That being said, claim 1 is novel over Israel because Israel does not recite all of the elements of claim 1. Israel makes no mention of an extruded powder, let alone an extruded powder disposed in a groove. Israel at great length describes the flowable powders being loaded into a pan and subsequently pressed to give the powder firmness. But, as discussed, pressed powders are not the same as extruded powders. Based on the absence of extruded powders in Israel, Israel does not anticipate the present invention. Applicant requests reconsideration of this rejection. Since claim 1 is not anticipated by Israel, neither are dependent claims 2-28. However, regarding claim 27, applicant wishes to point out that Israel does not disclose a cover which is friction fit onto the surface. The cover 14 in Israel is secured by a fastener made up of detent 18 and slot 20. For this reason, claim 27 is further not anticipated by Israel.

Since all of the remaining rejections of the present office action rely on Israel et al. as the primary reference, all of these rejections must be withdrawn also. With no outstanding matters, allowance of all pending claims is requested.

Respectfully submitted,

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